

mm in diameter, height of 50 mm, nominal capacity of 580 mAh). Used as a separator was a microporous membrane formed of polypropylene.

(COMPARATIVE EXAMPLE 1)

5 In the positive electrode fabrication of the above Example, only the lithium-manganese complex oxide (first oxide) was used as positive active material. Otherwise, the procedure used to construct the battery A of the present invention was followed to construct a comparative battery
10 X1.

(COMPARATIVE EXAMPLE 2)

In the positive electrode fabrication of the above Example, only a lithium-manganese complex oxide (spinel manganese) represented by LiMn_2O_4 was used as positive active
15 material. Otherwise, the procedure used to construct the battery A of the present invention was followed to construct a comparative battery X2.

(COMPARATIVE EXAMPLE 3)

20 In the positive electrode fabrication of the above Example, only the lithium-nickel-cobalt complex oxide (second oxide) was used as positive active material. Otherwise, the procedure used to construct the battery A of the present invention was followed to construct a comparative battery X3.

25 (COMPARATIVE EXAMPLE 4)

0954463-03104
101E80 E534T660

In the positive electrode fabrication of the above Example, the lithium-manganese complex oxide (spinel manganese) represented by the compositional formula LiMn_2O_4 was used for the first oxide. Otherwise, the procedure of Example 1 was followed to construct a comparative battery X4.

(COMPARATIVE EXAMPLE 5)

In the positive electrode fabrication of the above Example, the lithium-nickel-cobalt complex oxide represented by the compositional formula $\text{LiNi}_{0.8}\text{Co}_{0.2}\text{O}_2$ was used for the second oxide. Otherwise, the procedure used to construct the battery A of the present invention was followed to construct a comparative battery X5.

The positive electrode materials used to construct the above batteries are specified in Table 1.

[TABLE 1]

Type of Battery	Positive Electrode Material
Present Battery A	$\text{LiMn}_{1.95}\text{Al}_{0.05}\text{O}_4$
	$\text{LiNi}_{0.6}\text{Co}_{0.3}\text{Mn}_{0.1}\text{O}_2$
Comparative Battery X1	$\text{LiMn}_{1.95}\text{Al}_{0.05}\text{O}_4$
Comparative Battery X2	LiMn_2O_4
Comparative Battery X3	$\text{LiNi}_{0.6}\text{Co}_{0.3}\text{Mn}_{0.1}\text{O}_2$
Comparative Battery X4	LiMn_2O_4
	$\text{LiNi}_{0.6}\text{Co}_{0.3}\text{Mn}_{0.1}\text{O}_2$
Comparative Battery X5	$\text{LiMn}_{1.95}\text{Al}_{0.05}\text{O}_4$
	$\text{LiNi}_{0.8}\text{Co}_{0.2}\text{O}_2$

(CHARGE-DISCHARGE TEST)

Each of the present battery A and comparative batteries X1 - X5 was charged, at a constant current of 580 mA which is a value equivalent to the 1C rate, to 4.2 V at room temperature (25 °C), further charged, at a constant voltage of 4.2 V, to an end current of 50 mA, and then discharged, at a constant current of 580 mA which is a value equivalent to the 1C rate, to 2.75 V. The discharge capacity was recorded as a 1C capacity A_1 .

Next, each battery was charged in the same fashion as described above and then discharged, at a constant current of 116 mA which is a value equivalent to the 0.2C rate, to